

REMARKS

The Office Action of May 3, 2002, has been carefully considered.

It is noted that claims 5-8 are rejected under 35 USC 112, second paragraph.

Claim 5 and 6 are rejected under 35 USC 103(a) over the patent to Daly, et al.

Claims 5 and 6 are rejected under 35 USC 103(a) over Daly, et al. in view of JP 07-041896.

Claims 7 and 8 are rejected under 35 USC 103(a) over Daly, et al. in view of the patent to Lex.

In view of the Examiner's rejections of the claims applicants have amended claims 5 and 7.

It is respectfully submitted that the claims now on file particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Concerning the meaning of "as a final step" it appears that the Examiner has misunderstood what the claims are directed to. Claim 5 is directed to a process for producing aluminum strip for can making and claim 7 is directed to a plant for carrying out a process for producing aluminum strip for can making. Neither of these claims is directed to can making itself and thus the final step recited in the claims is not the final step in can making. Applicants have attempted to amend claims 5 and 7 to clarify that the final step is for the production of the aluminum strip.

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Regarding the term "non-critical temperature range from 260°C to 280°C" this refers to recrystallization. Thus, the temperature range of 260°C to 280°C is not critical for recrystallization. The temperature range is critical only for the purpose of comparison with the

temperature range of Daly, et al. Thus, the use of the term "non-critical" in the claim has a very distinct meaning with relationship to the recrystallization.

In view of these considerations it is respectfully submitted that the rejection of claims 5-8 under 35 USC 112, second paragraph, is overcome and should be withdrawn.

It is respectfully submitted that the claims presently on file differ essentially and in an unobvious, highly advantageous manner from the constructions disclosed in the references.

Turning now to the references, and particularly to the patent to Daly, et al., it can be seen that this reference discloses a method for producing aluminum can sheet. Daly, et al. do not in any way teach or mention that the recrystallization should be avoided during the rolling process. In column 3, lines 45-50 Daly, et al. state that if the rolling temperature falls below 332°C there can be a subsequent reheating to about 315°C to 399°C. This means that the recrystallization (in the case where the temperature of the material at the exit of the rolls is above 332°C) is expected. In another situation when the temperature falls below 332°C, a recrystallization can still be obtained by reheating since recrystallization will not take place at a temperature below 280°C.

initial rolling passes
reheat is after

Thus, it is believed clear that Daly, et al. acknowledge a possible recrystallization but do not consider this an important characteristic which has an impact on the total technology including the energy requirement in the construction and operation of the equipment since the recrystallization is not completely avoided and there is no teaching for completely avoiding the recrystallization as in the presently claimed invention. It is not merely the temperature range of the present invention which is of importance but more significantly the suppression of recrystallization during the hot rolling passes which distinguishes the presently claimed invention from the prior art, including the teachings of Daly, et al.

In view of these considerations it is respectfully submitted that the rejection of claims 5 and 6 under 35 USC 103(a) over Daly, et al. is overcome and should be withdrawn. Daly, et al. do not place any importance on whether or not recrystallization takes place and thus do not acknowledge the benefits associated with suppressing recrystallization as in the presently claimed invention.

JP '896 discloses an aluminum alloy sheet and its production which includes warm rolling at 100°C to 350°C. The Examiner combined the teachings of this reference with Daly, et al. in determining that claims 5 and 6 would be unpatentable over such a combination. Applicants respectfully submit that although JP '896 teaches a temperature range which overlaps the range recited in the presently claimed invention, as with Daly, et al. there is absolutely no teaching or suggestion that will be desirable to suppress recrystallization. As with Daly, et al., JP '896 does not seem to place any importance on whether or not recrystallization takes place. As previously mentioned, the presently claimed invention specifically includes a step of suppressing recrystallization which provides benefits relative to energy requirements and arrangement and construction of equipment which are in no way acknowledged or mentioned by the combination of references relied upon by the Examiner.

) not true

In view of these considerations it is respectfully submitted that the combination of references relied upon by the Examiner does not teach the process as recited in the claims presently on file, nor does the combination in any way acknowledge the benefits obtainable from suppressing recrystallization as in the presently claimed invention.

Therefore, it is respectfully submitted that the rejection of claims 5 and 6 under 35 USC 103(a) over a combination of the above-discussed references is overcome and should be withdrawn.

The patent to Lex discloses a dynamo or electro band. The Examiner combined the teachings of this reference with Daly, et al. in determining that claims 7 and 8 would be unpatentable over such a combination. To begin with applicants wish to point out that Lex deals with steel and thus provides no teachings concerning a plant for producing aluminum strip as in the presently claimed invention and furthermore provide no suggestions for modifying a method of producing aluminum canned sheet as taught by Daly, et al. Daly, et al. do not teach how the sheet material is transported from the rolls to the oven. The presently claimed invention specifically recites a transporting means which is in working cooperation with the pallets 11 which are in turn forwarded to the coal furnace by a pusher device 12, which has been used here for the first time in the production of aluminum can sheet. There is no teaching of this by the references relied upon by the Examiner.

In view of these considerations it is respectfully submitted that the rejection of claims 7 and 8 under 35 USC 103(a) over a combination of the above-discussed references is overcome and should be withdrawn.

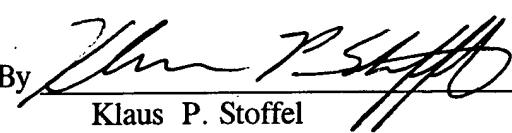
Reconsideration and allowance of the present application are respectfully requested.

It is believed that no fees or charges are required at this time in connection with the present application; however, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,

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Dated: September 3, 2002

In the Claims:

5. (Amended) A process for producing hot-rolled aluminum strip for can making, comprising the steps of:

feeding a feed material into a reversing roughing stage to form a strip;

finish rolling the strip from a coil to a coil on a reversing roll stand immediately after the roughing stage in a number of hot rolling passes;

suppressing recrystallization of the rolled strip by controlled temperature management of the strip so that last of the hot rolling passes are carried out without recrystallization ~~of~~^{on} the reversing roll stand from coil to coil in a non-critical temperature range of 260°C to a maximum of about 280°C;

coiling the strip into finished coils; and

feeding each finished coil to a continuous pusher type furnace for heat treating the finished coils to a recrystallization temperature 315°C to 320°C, as a final step for producing the aluminum strip for can making.

7. (Amended) A plant for carrying out a process for producing hot-rolled aluminum strip for can making, comprising:

a reversing roughing stage for aluminum feed material which is used hot, the roughing stage being capable of producing a rough strip;

means for finish rolling the rough strip in a number of hot rolling passes so that last of the hot rolling passes occur without recrystallization in a non-critical temperature range of 260°C to a maximum of about 280°C, the finish rolling means including a four-high reversing

roll stand and a respective winding device arranged on each side of the roll stand for coiling the strip;

means for heat treating the finish coiled strip to a recrystallization temperature of 315°C to 320°C as a final production stage for producing the aluminum strip for can making, the heat treating means including a pusher-type coil furnace and a pallet transport system via which a number of contacting pallets, each holding a coil, is transported through the pusher-type coil furnace by displacement of the pallets; and

means for transporting the coiled strip to the heat treating means, one of winding devices corresponding with the transporting means, the transporting means being in working cooperation with the pallets.